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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,988	02/20/2004	Vishal Kathuria	MSFT-2732/305554.01	7139

			EXAMINER
41505	7590	08/22/2006	SYED, FARHAN M

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ART UNIT	PAPER NUMBER
2165	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 February 2004*.

2a)☐ This action is **FINAL**.　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 February 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some *　c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)　Paper No(s)/Mail Date *20050617, 20060206*.

4) ☐ Interview Summary (PTO-413)　Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1.   Claims 1-28 are pending.

Drawings

2.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Figure 1, item 36' and Figure 2, item 200. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   Claims 1-4, 7, 9-14, 17, 19-24, and 27 are rejected under 35 U.S.C. 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the

subject matter which applicant regards as the invention.

5.   The term "durable read" in claims 1, 3, 11, 13, 21, and 23 is a relative term which

renders the claim indefinite. The term "durable read(s)" is not defined by the claim, the

specification does not provide a standard for ascertaining the requisite degree, and one

of ordinary skill in the art would not be reasonably apprised of the scope of the

invention. The term renders the respective claim indefinite, because lazy commit

transactions are dependent upon the term.

6.   The term "lazy commit" in claims 1, 2, 4, 7, 9-12, 14, 17, 19-22, 24, and 27 is a

relative term which renders the claim indefinite. The term "lazy commit" is not defined

by the claim, the specification does not provide a standard for ascertaining the requisite

degree, and one of ordinary skill in the art would not be reasonably apprised of the

scope of the invention. The term renders the respective claims indefinite, because

flushing a transaction log is dependent upon the said term.

Claim Rejections - 35 USC § 101

7.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

Claims 1, 11, and 21 are rejected under 35 U.S.C. 101 because the disclosed

invention is inoperative and therefore lacks utility. The respective claims fail to show

how a durable read is performed on a tangible medium, how lazy commit transactions

are executed, and how flushing a transaction log is to occur.

Claims 5, 6, 15, 16, 25, and 26 are rejected under 35 U.S.C. 101 because the

claimed invention is directed to non-statutory subject matter. The respective claims

clearly recite descriptive material, where it can be characterized as either "functional

descriptive material" or "non-functional descriptive material." In this context, "functional

descriptive material consists of data structures and computer programs which impart

functionality when employed as a computer component. Both types of "descriptive

material" are nonstatutory when claimed as descriptive material *per se. Warmerdam*, 33

F.3d at 1360, 31 USPQ2d at 1759.

Claim Rejections - 35 USC § 102

8.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9.   Claims 1-28 are rejected under 35 U.S.C. 102(b) as being anticipated by Lomet

(U.S. Patent 5,933,838).

As per claims 1, 11, and 21, Lomet teaches a method for performing durable reads of a data page in a system (i.e. *"Flushing the application state to stable storage effectively installs the application operations logged in the stable log." "According to one implementation, a database computer system has a processing unit, a volatile main memory that does not persist across a system crash, and a stable memory that persists across a system crash."* The preceding text clearly indicates that the flushing the application logs to in a stable log that resides on a stable memory (which is a persistent data store) within a database computer system is the process of performing a durable read.)(Column 5, lines 54-56 and lines 62-65) that permits lazy commit transactions (i.e. *"Posting the read values to the log is helpful in one sense because the cache manager is not concerned about which sequence to flush objects. Certain object states need not be preserved by a particular flushing order because any data values obtained from an object which are needed to redo an application operation are available directly from the stable log."* The preceding text clearly indicates that a lazy transaction is the posting of values to the log irrespective of the sequence of flushing the objects in a particular order.)(Column 6, lines 43-48), said method comprising flushing a transaction log associated with said data page prior to said data page being read as a part of a durable read operation (i.e. *"The application state (i.e., address space) is treated as a single object that can be atomically flushed in a manner akin to flushing individual pages in database recovery techniques. And like the pages of the database, log records describing application state changes are posted on the stable log before application state is flushed."*)(Column 5, lines 43-48).

As per claims 2, 12, and 22, Lomet teaches a method further comprising: marking said data page when modified by a lazy commit transaction (i.e. *"The resource manager tags the application states at these interaction points by assigning them state IDs."*)(Column 6, lines 17-20); and unmarking said data page when said commit log associated with said

data page is flushed (i.e. *"The application state is treated as a single object that can be atomically flushed to the stable database. In addition, the application operations often cause changes to the data pages, records, or other types of objects stored in the volatile cache. The modified objects that result from application operations are from time to time flushed to the stable database. The flushed application states and objects are assigned state IDs to identify their place in the execution sequence. Flushing the application object effectively installs all the operations, updating the application operations that are in the stable log which have earlier state IDs."*)(Column 6, lines 22-32).

As per claims 3, 13, and 23, Lomet teaches a method wherein the steps of flushing a transaction log associated with said data page prior to said data page being read by a durable read operation occurs when said data page is marked (i.e. *"Flushing the application state to stable storage effectively installs the application operations logged in the stable log." "According to one implementation, a database computer system has a processing unit, a volatile main memory that does not persist across a system crash, and a stable memory that persists across a system crash."*)(Column 5, lines 54-56 and lines 62-65), and wherein said method further comprises reading an unmarked data page as part of a durable read operation without first flushing said transaction log associated with said data page (i.e. *"The application state (i.e., address space) is treated as a single object that can be atomically flushed in a manner akin to flushing individual pages in database recovery techniques. And like the pages of the database, log records describing application state changes are posted on the stable log before application state is flushed."*)(Column 5, lines 43-48).

As per claims 4, 14, and 24 Lomet teaches a method wherein the step of marking a data page when modified by a lazy commit transaction comprises writing a value of a

bit associated with said data page (i.e. *"Each data structure has an object identifier field 131, 132 to hold the object identifier (e.g., A or O), a state identifier field 133, 134 to hold the state ID for the value of the object, a dirty flag field 135, 136 which holds a flag bit indicating whether or not the object has been modified in volatile cache without those modifications being flushed to stable memory, and a cache location field 137, 138 to hold an address to a location in volatile cache where the current cached value of the object physically resides."*)(Column 18, lines 51-59).

As per claims 5, 15, and 25, Lomet teaches a method wherein the bit is stored in said data page (i.e. *"Each data structure has an object identifier field 131, 132 to hold the object identifier (e.g., A or O), a state identifier field 133, 134 to hold the state ID for the value of the object, a dirty flag field 135, 136 which holds a flag bit indicating whether or not the object has been modified in volatile cache without those modifications being flushed to stable memory, and a cache location field 137, 138 to hold an address to a location in volatile cache where the current cached value of the object physically resides."*)(Column 18, lines 51-59).

As per claims 6, 16, and 26, Lomet teaches a method wherein the bit is stored in a reference table (i.e. *"Each data structure has an object identifier field 131, 132 to hold the object identifier (e.g., A or O), a state identifier field 133, 134 to hold the state ID for the value of the object, a dirty flag field 135, 136 which holds a flag bit indicating whether or not the object has been modified in volatile cache without those modifications being flushed to stable memory, and a cache location field 137, 138 to hold an address to a location in volatile cache where the current cached value of the object physically resides."*)(Column 18, lines 51-59).

As per claims 7, 17, and 27, Lomet teaches a method wherein the step of marking a data page when modified by a lazy commit transaction comprises recording,

in a reference location associated with said data page (i.e. *"The resource manager tags the application states at these interaction points by assigning them state IDs."*)(Column 6, lines 17-20), a copy of a log sequence number from said transaction log and corresponding to said modification of said data page by said lazy commit transaction (i.e. *"The flushed application states and objects are assigned state IDs to identify their place in the execution sequence. Flushing the application object effectively installs all the operations, updating the application operations that are in the stable log which have earlier state IDs."*)(Column 6, lines 27-32).

As per claims 8 and 18, Lomet teaches a method wherein said copy of the log sequence number is stored in said data page (i.e. *"The flushed application states and objects are assigned state IDs to identify their place in the execution sequence. Flushing the application object effectively installs all the operations, updating the application operations that are in the stable log which have earlier state IDs."*)(Column 6, lines 27-32).

As per claims 9 and 19, Lomet teaches a method wherein said copy of the log sequence number is stored in a lazy commit reference table (i.e. *"The flushed application states and objects are assigned state IDs to identify their place in the execution sequence. Flushing the application object effectively installs all the operations, updating the application operations that are in the stable log which have earlier state IDs."*)(Column 6, lines 27-32).

As per claims 10, 20, and 28, Lomet teaches a method wherein the copy of the log sequence number is used to identify the lazy commit transaction in order to cause said lazy commit transaction to effect the step of flushing said transaction log associated with said data page and unmarking said data page when said data page is

flushed (i.e. *"The object table includes fields to track dependencies among the objects. In one implementation, the object table includes, for each object entry, a predecessor field which lists all objects that must be flushed prior to the subject object, and a successor field which lists all objects before which the subject object must be flushed. In another implementation, the object table contains, for each object entry, a node field to store dependencies in terms of their nodes in a write graph formulation."*)(Column 6, lines 62-67; column 7, lines 1-4).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Farhan M. Syed whose telephone number is 571-272-7191. The examiner can normally be reached on 8:30AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
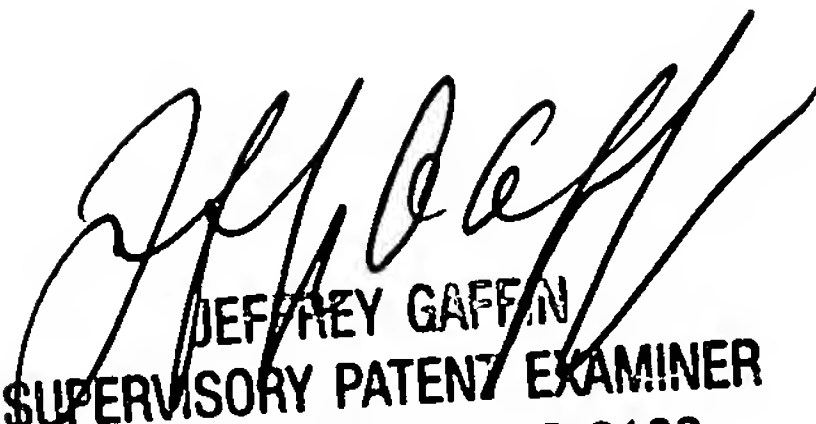
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FMS

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